

Sul Ross State University **ENVIRONMENTAL GEOLOGY – GEOL 1305**, Spring 2026;

**Course meets:** Mon,Wed,Fri 1-1:50; WSB 210

**Professor:** Dr. Jesse Kelsch

**Office:** WSB 316; 432-837-8657; jkelsch@sulross.edu

**Office Hours:** 11:30-12:45 Monday through Thursday

**GENERAL DESCRIPTION OF THE COURSE:**

Welcome to GEOL 1305, Environmental Geology at Sul Ross State University. This course is designed to teach you the fundamental concepts of environmental geology, which can be thought of as applied geology, or as all the parts of Earth Science with which human society interacts, including natural hazards and natural resources. This course has no prerequisites, so we start with the fundamental geologic topics of Earth materials, processes, and cycles. We then learn about natural hazards like volcanoes and floods, natural resources like soil, groundwater, metals and other minerals, various energy sources, and global climate change. The content covered is both global and local in scale. The associated lab is a separate, 1-credit class (GEOL 1105), and it has its own syllabus and will build on content discussed in this lecture class.

**Course Learning Objectives- Each student will develop:**

1. Knowledge about the application of the scientific method as a tool for understanding Earth's processes
2. Knowledge about the composition and formation of common rocks and minerals and soils
3. An understanding of hazardous earth processes
4. An understanding of how the extraction and use of natural resources affects our society and our environment
5. A general knowledge of Earth climate and changes to this climate

**GRADING:**

- Exercises: Four exercises which will be started during class time and finished at home are part of the course grade at 8% each (32% total).
- Concept sketches: Students will draw and annotate five single-page concept sketches, and four will be graded at 8% of the course grade each (32% total).
- Exams: Three section exams will be dispersed through the semester. Each is worth 9% of the course grade (27% total).
- Nine percent of the total course grade comes from attendance and participation in class discussions.

	Points for each	Quantity of each	Total points	Percent of grade
Sketch assignments	8	5	32	32%
Exercises	8	4	32	32%
Section exams	9	3	27	27%
Class attendance and participation			9	9%

Final course grade will be based on a percentage in the standard grading system:

100-90 (A), <90-80 (B); <80-70 (C), <70-60 (D), <60 (F)

### **Attendance and Make-up Policy:**

The only acceptable excuses for missing class are those due to illness, approved Sul Ross sanctioned events, and observation of religious holidays. All excused absences must be documented on paper. Please inform the professor at least 1 week prior to missing class (email, note on office door, etc.). With an appropriate excuse, you must make up missed exams within FIVE days of the last day of the absence or you have failed to meet your course responsibilities and will receive a zero. University policy dictates that your instructor can drop you with an F from the course after 6 absences from TR classes or after 9 absences from MWF classes. Sounds serious! But you can do well in this course if you show up, pay attention and participate during the whole class time, and stay current on your assignments.

### **ADA Statement**

SRSU Accessibility Services. Sul Ross State University (SRSU) is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Students seeking accessibility/accommodations services must contact Mrs. Mary Schwartz Grisham, LPC, SRSU's Accessibility Services Director or Ronnie Harris, LPC, Counselor, at 432-837-8203 or email [mschwartz@sulross.edu](mailto:mschwartz@sulross.edu) or [ronnie.harris@sulross.edu](mailto:ronnie.harris@sulross.edu). Our office is located on the first floor of Ferguson Hall, room 112, and our mailing address is P.O. Box C122, Sul Ross State University, Alpine. Texas, 79832.

### **Required Student Responsibilities Statement**

All full-time and part-time students are responsible for familiarizing themselves with the [Student Handbook](#) and the [Undergraduate & Graduate Catalog](#) and for abiding by the [University rules and regulations](#). Additionally, students are responsible for checking their Sul Ross email as an official form of communication from the university. Every student is expected to obey all federal, state and local laws and is expected to familiarize themselves with the requirements of such laws.

### **SRSU Distance Education Statement**

Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website.

Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires a secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.

### **Academic Integrity**

Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. Students should submit work that is their own and avoid the temptation to engage in behaviors that violate academic integrity, such as turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden. In this course, every element of class assignments must be fully prepared by the student. The use of generative AI tools for any part of your work will be treated as plagiarism. If you have questions, please contact me. Violations of academic integrity can result in failing assignments, failing the class, and/or more serious university consequences. These behaviors also erode the value of college degrees and higher education overall.

### Semester schedule:

Week	Day	Date	Class topic	Concept sketch or exercise
1	W	1/14/2026	Introduction to Environmental Geology	
	F	1/16/2026	The Earth System: Geosphere, Hydrosphere, Atmosphere, Biosphere	<a href="#">1: Earth system sketch</a>
	M	1/19/2026	HOLIDAY	
2	W	1/21/2026	Earth Materials, Processes, and Cycles: Earth's Interior	
	F	23-Jan	The Geosphere: Rocks and Minerals	
	M	1/26/2026	Igneous rocks	
3	W	1/28/2026	Igneous rocks	
	F	1/30/2026	Sedimentary rocks	
	M	2/2/2026	Sedimentary rocks	
4	W	2/4/2026	Metamorphic rocks	
	F	2/6/2026	Earth Materials, Processes, and Cycles 2: Plate Tectonics	<a href="#">2: Tectonic plate boundaries sketch</a>
	M	2/9/2026	Plate Tectonics, mountain building, and geologic structures	
5	W	2/11/2026	<b>EXAM I DURING CLASS</b>	
	F	2/13/2026	Plate Tectonics: how we know	
	M	2/16/2026	The hydrosphere: Earth's water cycle	<a href="#">3: Water cycle sketch</a>
6	W	2/18/2026	The long-term (geologic) carbon cycle	
	F	2/20/2026	The carbon cycle and other geochemical cycles through the Earth System	
	M	2/23/2026	Earth's climate system	
7	W	2/25/2026	Climate change and Earth's energy budget	<a href="#">4: Energy budget sketch</a>
	F	2/27/2026	The hydrosphere and geosphere: Groundwater	
	M	3/2/2026	Groundwater	
8	W	3/4/2026	Groundwater in west Texas	
	F	3/6/2026	River systems: watersheds	
	M	3/9/2026		
9	W	3/11/2026	Spring Break: No classes	
	F	3/13/2026		
	M	3/16/2026	River systems: channel forms and flood plains	<a href="#">5: River systems sketch</a>
10	W	3/18/2026	<i>River flooding: in-class exercise (bring laptop)</i>	<a href="#">Rivers: exercise</a>
	F	3/20/2026	Natural hazards: River flooding; flood frequency analyses	
	M	3/23/2026	Rivers review	
11	W	3/25/2026	<b>EXAM II DURING CLASS</b>	
	F	3/27/2026	Natural hazards: Coastal processes	
	M	3/30/2026	Natural hazards: Volcanoes	
12	W	4/1/2026	<i>Volcanoes: In-class exercise (bring laptop)</i>	<a href="#">Volcanoes: exercise</a>
	F	4/3/2026	Natural hazards: Volcanoes	
	M	4/6/2026	Natural hazards: Earthquakes	
13	W	4/8/2026	<i>Earthquakes: In-class exercise (bring laptop)</i>	<a href="#">Earthquakes: exercise</a>
	F	4/10/2026	Natural hazards: Earthquakes	
	M	4/13/2026	Soils: Intersection of geo-, atmo-, hydro-, and biospheres	
14	W	4/15/2026	Soils' formation and loss	
	F	4/17/2026	Natural hazards: landslides, aka mass movements	<a href="#">Landslides: exercise</a>
	M	4/20/2026	Resources from the Earth System: Minerals	
15	W	4/22/2026	Mineral resources	
	F	4/24/2026	Energy resources from the Earth system	
	M	27-Apr	Energy resources	
	W	29-Apr	Review for final exam	
			<b>EXAM III Friday, May 12:30 - 2:30 pm</b>	